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ABSTRACT

In a class of eight students, an attempt was made to determine the effects on student collaboration of using the computer as a writing instrument and the influence the computer might have on social relationships in a high school writing class. Student collaboration consisted of several kinds, including: (1) the sharing of technical help for using the computer and for making computer-created designs, and (2) working in pairs to create and edit a work and to write silly poems and "silent dialogues." These collaborations were important in reducing students' anxieties about both writing and computers, in their learning how to do things, and in establishing the relationships of trust necessary in exposing themselves as learners and writers. Students who learned to collaborate as writers in the class made noticeable gains as writers, felt positive about the experience, discovered writing as an important way of expressing themselves, and sustained their involvement with writing. (EL)

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Collaboration in a High School Computers and Writing Class: An Ethnographic Study

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Collaboration in a High School Computers and Writing Class: An Ethnographic Study

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Collaboration has been receiving attention recently, especially its pedagogical benefits, both in the field of writing and in the field of computers. My specific interest is in computers used as writing instruments. In my year-long, ethnographic study of a high school writing class--I was both the teacher and the researcher--I have been particularly interested in seeing to what extent our computer-rich environment promoted collaboration. Before discussing my research, however, I would like to look briefly at what theorists and researchers in writing, in computers, and in computers and writing have said about collaboration in classrooms.

Kenneth Bruffee in "Writing and Reading as Collaborative or Social Acts," advocates collaboration as an essential aspect of the teaching of writing. He states:

> This necessity to talk-through the task of writing means that collaborative learning, which is the institutionalized counterpart of the social or collaborative nature of knowledge and thought, is not merely a helpful pedagogical technique incidental to writing. It is essential to writing (165).

In his best-selling book, Mindstorms, Children, Computers, and Powerful Ideas, Seymour Papert says:

> A very important feature of work with computers is that the teacher and the learner can be engaged in a real intellectual collaboration; together they can try to get the computer to do this or that and understand what it actually does. New situations that neither teacher nor learner has seen before come up frequently and so the teacher does not have to pretend not to know. . . (115).

While Papert is referring in this instance to the teaching of the computer language, Logo, and to the collaborative possibilities between teacher and student, his comments might also apply to the writing classroom using word processing and to relationships between students.

Regarding the value of the computer in the teaching of writing and as a mediator of learning between individuals, Papert says: "I believe that the computer as writing instrument offers children an opportunity to become more like adults, indeed like advanced professionals, in their relationship to their intellectual products and to themselves" (31). In the final analysis, Papert envisions the computer "as a transitional object to mediate relationships that are ultimately between person and person" (183).

Research of Papert's claims has been done at The Bank Street School for Children. Jan Hawkins, studying the effects of collaboration in classrooms where Logo was being taught, observed that "children do not frequently engage in collaborative activities" (48); however, she noted that "children engaged in more collaborative activity with computer than with noncomputer tasks" (45). In spite of the lack of observational data on collaboration, she concluded that computers offer a context in which "children engage in and appear to value the effectiveness of collaborative work. . . . The technology, therefore, offers the possibility of a classroom learning context where efficient collaborative activity might occur with some frequency. . ." (48).

Jane Kane also conducted studies at The Bank Street School for Children, but her work was focused on students using word processing.

They wrote on microcomputers during 45-minute sessions, twice weekly for five weeks. Kane concluded that "students were so involved with their own texts that they seldom spoke with others. Only once did a student ask another to read his work" (22).

Collaboration in writing classrooms is to be encouraged, according to theoreticians such as Bruffee and Papert, and, according to the latter, the computer in the classroom stimulates and facilitates such activities. The two studies on the issue of collaboration in classrooms with computers, however, while admittedly a very small number, do not substantiate such claims.

Papert's work alerted me to the possibility of observing collaborative activities in my high school writing class. One of the things I was interested in observing was what the computer's effects on student collaboration might be and what influence it might have on the social relations in a writing classroom. Ray McDermott, an educational ethnographer, believes that "many of our children spend most of their time in relational battles rather than on learning tasks" (208). He argues for "the primacy of social relations in determining children's success or failure in school" (209).

If the computer encourages collaborative relationships, I reasoned, then the computer used as a writing instrument might be an effective way both to individualize writing instruction, encourage students' helping relationships to each other, and promote greater equity between teacher and student. Students who know how to succeed academically but who write only because they have to, as well as those whom our educational system has traditionally failed, might be successfully reached. The computer might become a powerful instrument for schools in combating the literacy crisis. In my talk today I will

look at collaboration as it occurred among the students in my class.

Some of the eight students in the class collaborated almost from the beginning. The help they gave one another, however, focused initially on technical matters: how to call up a file, insert or delete writing, save a file, scoll the text, and so forth. Of course, as the teacher I encouraged these exchanges. I could not be with everyone and there were often several students in need of assistance at any given moment.

Some students mastered the mechanical aspects of writing on the computer easily. They were not intimidated by the equipment. They observed my demonstrations, experimented, and applied a variety of problem-solving strategies. When they made a new discovery they played with it, mastered it, and shared it with their classmates. Other students, however, did not learn how to word process readily. They had trouble retaining procedures, were reluctant to try things out, and did not problem-solve well. Their reluctance to interact with their peers or to ask me for help compounded their difficulties. Instead of seeking aid they tried to hide their problems. Their anxiety learning how to operate a computer, their fear of failure, the publicness of their texts on the monitors, and their newness to this interactive, learning experience all worked to inhibit their ability to share.

While there were differences between students in their willingness to collaborate on technical matters, all students shared a reluctance to participate in collaborative writing activities, at least initially. What I thought I might see--intermittant or sustained interaction between student partners sharing aspects of a writing project, perhaps even composing a text together--I did not

see. With only six computers and eight students in the class there were not enough computers to go around. Yet the "extra" students--often the students having trouble since they tended to hang back until the computers were taken--watched one of the others work or wrote in pencil at their desks. The weight of years of experience in traditional classrooms, which demand that each student do his or her own written work, played a part. And the students--from a mixture of grades and ability levels--were still uncomfortable with each other and with me.

But as time went on types of shared writing activities did develop. Students gained confidence as they mastered word processing. Successful collaborations on the mechanical aspects fostered good rapport between students. Friendships developed and, at least for some, a greater willingness to expose themselves as learners and as writers. As trust in relationships grew, the type and amount of writing collaboration increased.

It is important to say, however, that students varied in their ability to collaborate with others. The three students who experienced difficulty exchanging information on the mechanical aspects of word processing continued to find exposing their writing to classmates and to me difficult. Various factors entered into these differences in collaborative ability, but the most important appear to be that some students felt they did not fit into the class. They said that the others were "smarter" than they were. They said the other students weren't friendly to them, and they believed, at least initially, that I wasn't helping them enough. There was a serious breakdown in trust and in communication.

Their ambivalences caused them to send me mixed messages: I

don't need help; I need help but I don't want you to help me; I need help, help me. Just as their desire to learn how to use a computer was in conflict with a fear of exposing themselves and failing, so their desire to learn how to write was in conflict with the same fear of exposure and failure. Some students, therefore, attempted to hide their writing problems along with their word processing ones. They covered their screens, scrolled up their texts, or simply told people not to look. Sometimes they worked in pencil away from the computer, cut class, came late, or got permission to leave the room. In general they employed strategies that significantly reduced their time in the room and at the computer.

Just as students varied in their willingness to share their writing, they also showed preferences in who they worked with. Certain students were frequently called upon by others to act as editors, and some students were used as sounding boards for ideas. Eventually a good deal of collaboration went on in the room. Curious ways of sharing writing and strange texts emerged. I would like to look briefly at some of these processes and products.

There were both organized and spontaneous types of interactions. The organized collaborations were teacher-initiated. One type was the sharing session--after a first draft of a writing project was completed--when students read their work to the group for feedback. Another type occurred when they published a newspaper together. They worked with each other on the production of it and they collaborated electronically, so to speak, with my other English classes through the exchange of disks. The research class did the final edit; they formatted and printed out the completed paper. Spontaneous collaborations, on the other hand, were unorganized, often spur of the

moment, exchanges that were usually initiated by the students.

Spontaneous collaborations were either covert or overt. By covert I simply mean that things--ideas and/or working methods--got shared between one another, even though the students were not actually working together. An obvious example of this is found in the students' designs. (See Fig. A-I) While no two designs are exactly alike, the cross-fertilization of ideas is readily apparent. Trees, Christmas items, forms shaped by the repetition of words, all reveal mutual influences. Less obvious was the sharing of topics or the sharing of methods. For example, Joanne constructed her tree design from a list of words she'd generated at the top of her screen. Liz wondered if Joanne's method might help her to develop a character sketch, so she made a list of adjectives describing her character before beginning to write. Chad and Carmen wrote separate poems within a day or so of each other on the same subject, fog.

Most of the collaborative activites, however, were overt. This refers to what we normally think of as collaboration, students working in pairs, sometimes in groups, during the creation or editing of a text. These were sometimes brief exchanges. Students frequently asked each other for help--a synonym, a spelling, a punctuation rule, or a quick opinion on something they were unsure about. But there were also lengthier collaborations running from one class period up to several days. While students mostly worked in pairs, they sometimes worked in groups. One ongoing project, sometimes involving a pair of students, sometimes a group, was the writing of humorous verse. Here is an account of this activity from Joanne's writing process journal.

> The past few days, I've been writing silly rhyming poems that Shelly and I initially started. A few months ago, she started a really serious poem, and asked me for some help with rhyming words. I gave her some silly ones--and she used them--and the

CHAD'S "GARBAGE!"

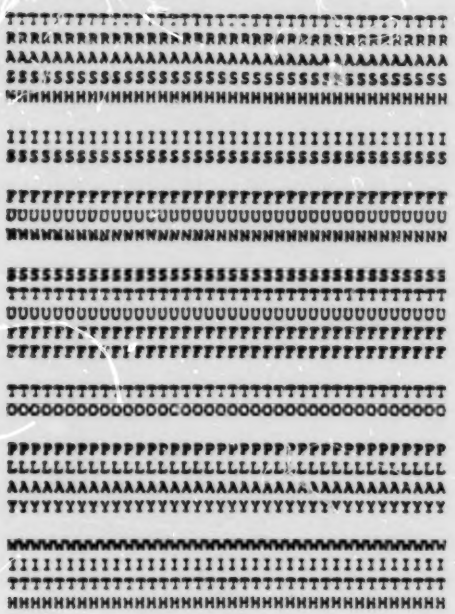

Fig. A

Liz's File, "Rainbows"

RAINBOWS

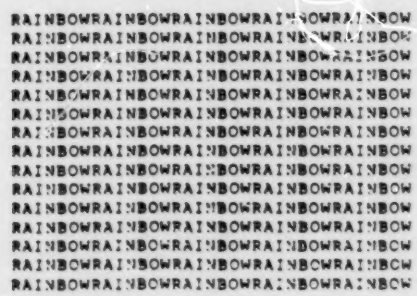

Fig. B

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Shelly's file, "Frosty"

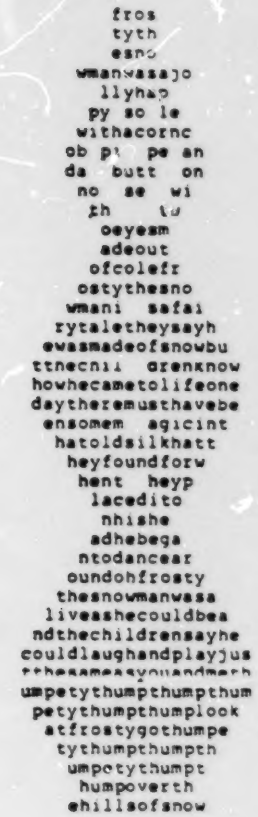

Fig. C

Shelly's File, "Elf"

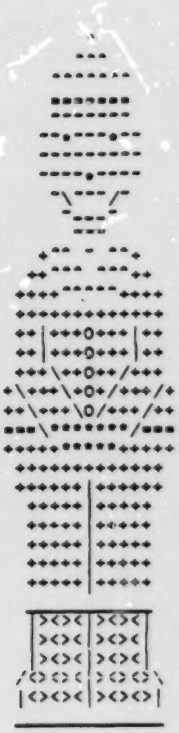

Fig. D

Chad's File, "Sleigh"

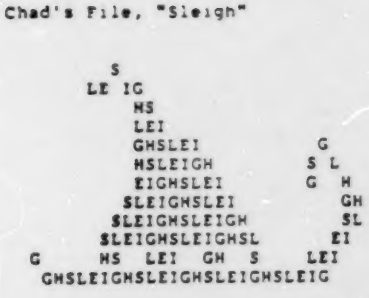

Fig. E

Chad's File, "U 2"

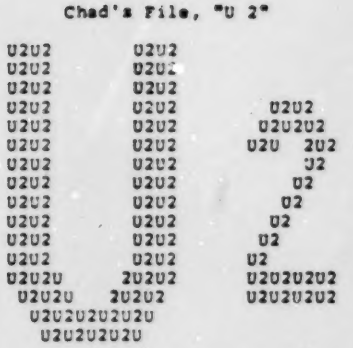

Fig. F

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Joanne's File, "Joanne"

```
                J
J              JOA              J
O             JOANN             O
A            JOANNEJ            A
N          JOANNEJOA            N
N         JOANNEJOANN           N
E        JOANNEJOANNEJ          E

L       LEELEELEELEELEE         L
E      LEELEELEELEELEELE        E
E     LEELEELEELEELEELEEL       E

R       RITTERSDORFRITTERSDOR   R
I      RITTERSDORFRITTERSDORRI  I
T     RITTERSDORFRITTERSDORFRIT T
T    RITTERSDORFRITTERSDORFRITTE T
E   RITTERSDORFRITTERSDORFRITTERS E
R  RITTERSDORFRITTERSDORFRITTERSDO R
S  RITTERSDORFRITTERSDORFRITTERSDO S
D  RITTERSDORFRITTERSDORFRITTERSDO D
O   RITTERSDORFRITTERSDORFRITTERS  O
R   RITTERSDORFRITTERSDORFRITTERS  R
F   RITTERSDORFRITTERSDORFRITTERS  F
```

Fig. G

Joanne's File, "Tree"

A TREE

```
                ax
              limb
            branch
          kindling
        log timber
      campfire ash
    bark twig wood
  green chlorophyl
 leaf wind rustling
needles pinecone sap
autumn red orange fall
spring sun blossom fruit
winter bare Christmas ball
ornaments tinsel star lights
nest bird stump hollow decayed
forest thicket enchanted density
jungle grove shelter rain brownish
l'arbre feuillage foret l'oiseau Noel
              trunk
              trunk
              trunk
              trunk
            r   r
          o   o   o
        o   o     o
          t   t   t
        s   s     s
```

Fig. H

Carol's File, "Diel"

```
                B
               B A
              B A R
             B A R B
            B A R B A
           B A R B A R
          B A R B A R A
         B A R B A R A D
        B A R B A R A D I
       B A R B A R A D I E
      B A R B A R A D I E M
     B A R B A R A D I E M L
              !!!!!!
              !!!!!!
              !!!!!!
             !!!!!!!!
```

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Fig. I

fun began.

We only wrote a few silly verses at the time, so on Friday when I was at a loss for inspirational writing material, I asked for her disk so I could write some more. Liz helped me Friday, and we made some funny and some naughty ones. They vary in length--some are three lines and some are six lines long. I really enjoy writing them and even look forward to them, now.

Yesterday I got Doug and even Chad to help with some words. They pick a word and then we go from there. It has to be an unusual one or a good rhyming one. Today Doug and I wrote a few more. One point is that we never use the same rhyming ending twice--they all must be different.

Here are a few of their silly poems:

Sounds abound
All around
Lions roar
Birds soar
Swooping down
Acorn found.

He wanted to draw
Her in the raw
Using a straw
Clenched in his jaw
She started to thaw
Except for her jaw
He loved what he saw.

They fell
Down the well
What a smell
It was swell
They didn't tell
The farmer in the dell
He'd yell
Ring the bell
And give'em hell.

Joanne concluded her journal about the silly rhyming poems by saying, "I think writing should be fun, and I think this is a beneficial exercise, not only for writing skills, but also for writing and getting along with others."

Participating in "silent dialogues" was a type of collaborative writing two of the students sometimes did. Both sat at one computer, alternating control over the keyboard, and rotating the monitor back and forth for each turn. Neither student spoke. In these written

conversations Shelly is the lower-case voice and Chad the upper-case. (The writing appears exactly as the students wrote it.)

ha ha this is funny
this is extremely humurious
the vibration from mars are beginning to present themselves.

WHERE? WHO? WHY ME?!

they are entering our own orbit.
i don't know, but they are deffidentally hostile.
yes you!

YOU SAID "THEY," THEY WHO? DON'T YOU REALIZED THAT THEY COULD BE ERONIOUS BEININGS THAT HAVE NO INTERCELLULAR DEVELOPMENTAL PROCESSES.

would you please shut up, and help me i'm drowning. they are pushing me deeper and deeper (thanks).

FOR WHAT?

everything, you are sooo wonderful to me.

HOLD ON SWEET PRINCESS I'LL SAVE YOU!

forgive me if i don't feel reassured, and by the way are you going to stop bragging and come save me before i'm dead?

YES!

well i'm still drowning

QUICK! YOU MUST TELL ME WHERE YOU ARE!

have you ever thought of opening your eyes, i'm right in front of you you idiot

FINE, SCREW YOU THEN ! YOU CAN JUST SIT IN THE MILK!!!!!!!

oh, i'd love to. i never thought you were going to ask

Another type of collaboration sometimes occurred between these same two students. Chad would type a word or phrase into Shelly's computer and she was then obliged to write at least one paragraph on the topic. She would do the same to Chad's file. They delighted in providing each other with difficult topics. Chad gave Shelly "Subjective Logic," "Carbon Chain of a Rubber Band," and, "Monolith

and Megalith." Shelly gave Chad "Vibrations," and "Interstelular Objects."

Shelly commented in her journal on this activity:

> I've been working on my "Nonsense" file. It is just that. I enjoy sitting down and just letting my thoughts flow and prosper, not having a subject but just writing whatever comes to my mind. I don't have much time to do this. It often is helpful, because I can sometimes come up with a topic I like to expand upon.

Chad had this to say in his journal on the topic:

> Shelly and myself have found an interesting angle today in writing on the computer. She asked me for an idea or topic to write on. So I gave her, "Subjective Logic." Shelly decided that she should not suffer too much, so she gave me the topic, "Vibrations." The result of both was very funny.

Shelly wrote:

> Subjective Logic.....
>
> What is logic? This must be first determined, before one may begin to relate upon subjective logic. Logic can be thought in many different ways. A nuclear physicist may define it as the knowledge which he has already attained. On the other hand, a sanitary engineer may believe the logic refers to all the knowledge which he does not have and it unable to obtain. Subjective logic is logic which is subject to question. Every fact which has been proven, is always being questioned. None of the greater minds of the world are ever satisfied with what is given. They must always be contridictive and try to disprove everything.

Chad wrote:

> Vibrations.....
>
> In fact, what are vibrations? They could be described as incredible shocks going from a source, to a receptical. You may now ask, "what, prey tell, is a shock?" Tell you what, why dont you say it with me,....., "What, prey tell, is a shock?" I knew you could do it. Well I'll tell you how to find out. Walk over to the electrical outlet in the wall...put your lips up to it and tounge it to death!

Joanne, observing this fun, decided to do something similar, according to her journal entry--another example of the covert collaboration mentioned above. She stated, "As Chad and Shelly were giving each other silly topics to write about, I thought of one for

myself. I began writing about four letter words."

Most collaboration, however, involved two students working together in writing or editing a serious piece of text. Two students might sit together at a computer, one student, the "writer," at the keyboard and the other a "helper." Sometimes it was the other way, the helper sitting at the keyboard, while the writer sat to the side. Students helped each other with their poetry, short stories, and essays.

As the audio portion of a videotaped collaboration between Shelly and Joanne shows, their comments cover an impressive range of concerns including the generation of ideas, the coordination of verb tenses, the selection of vocabulary, the use of cohesive devices, the placement of punctuation, as well as issues related to the mechanics of word processing. Shelly validates Joanne's invention of a word, "computerphobia," the value of her feeling that computers are "marvelous," and her selection of the word "refined" for describing her improved typing skills. Shelly's ongoing support helps an unsure Joanne move forward in the creation of her piece by suggesting ideas worth probing.

Shelly points out problems she spots in the text: a period needs to go inside the quotes, "refined" should be "has refined," "however" is being used in this context inappropriately. Shelly also helps Joanne understand what the word processing program is up to when it treats several words as one. The tape reveals two students seriously involved in writing. The interaction between them is occurring on global as well as local levels. While they are imagining new directions the writing might take, they attend to the appropriateness of punctuation or word choice in existing sentences. Yet they are

doing more than just writing together.

In addition to the actual help in writing, what is equally interesting about their exchanges are the comments unrelated to the writing. Shelly remarks, for example, about Joanne's flowered earrings and her "sweet" hair ribbon. Intertwined with the serious business of assisting Joanne with her essay, Shelly is playfully helping Joanne--an introverted and shy person according to her own account who has always experienced great difficulty communicating with others--feel more secure and confident about her writing and, perhaps more importantly, about herself.

As they banter back and forth, kidding each other, the melody of their language says that they're having fun. They make the intonation, stress, and pitch of their voices create playful personae that scold or praise, that reflect and temper the meaning of their words. By admiring Joanne's flowered earrings and her hair ribbon, Shelly is much more than Joanne's writing partner for the day--she is becoming her friend. Their exchanges, far from a waste of time, appear essential to the ongoing success of the collaboration. Like the ritualized, "Good morning. How are you?" that reaffirms people's relationships to each other, their good-natured interactions, laced between the business of writing, nurture mutual good-will. As Shelly and Joanne communicate, they are establishing and reaffirming a growing bond of trust.

Collaboration in this computers and writing class--the technical help, the silly rhyming verses, the silent conversations, the giving of topics, the helping partnerships--were all important in reducing students' anxieties both about writing and computers, in learning how to do things, and in establishing the relationships of trust necessary

to expose oneself as a learner and writer. Working with others required trust, yet paradoxically collaborating successfully fostered the growth of trust and established the basis for friendship and future collaborations. Playful working relationships lead students to experiment with langugae, to be more flexible in their approach to writing, and to get enjoyment from being creative with it. Students who made noticeable gains as writers during the year, who felt highly positive about this experience, who discovered writing as an important way of expressing and understanding themselves, and who sustained their involvement with writing were also the students who cultivated one or more sympathetic readers and who learned to collaborate as writers in the class.

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